Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
Forward-Looking Mechanism for High Cost Support for Non-Rural LECs	)	CC Docket No. 97-160

REPLY COMMENTS OF AT&T CORP. AND MCI TELECOMMUNICATIONS CORPORATION

David L. Lawson
Scott M. Bohannon
1722 I Street, N.W.
Washington, D.C. 20006
(202) 736-8034

Mark C. Rosenblum
Peter H. Jacoby
Room 3245H1
295 North Maple Avenue
Basking Ridge, New Jersey 07920
(908) 221-2631

Attorneys for AT&T Corp.

Mary J. Sisak
1801 Pennsylvania Avenue, N.W.
Washington, D.C. 20006
(202) 887-2605

Attorney for MCI Telecommunications Corporation

August 18, 1997

TABLE OF CONTENTS

SUMMARY

The comments submitted in the first round of this proceeding reflect broad consensus on most of the switching and interoffice cost issues raised by the Commission. Where disagreement does arise, it reflects the failure of incumbent LECs to recognize that a universal service cost model must estimate the forward-looking economic costs of providing universal service and that the model's data and algorithms must be open and verifiable. These incumbents continue in their attempts -- obvious or veiled -- to recover their embedded costs. In urging for unnecessarily high levels of capacity and complexity, they also advocate positions that would have consumers subsidizing services unrelated to universal service.

In Section I, AT&T and MCI discuss the comments relating to host, stand-alone, and remote switches. Although most participants agree that a cost mechanism ideally should assign the most efficient switch type to each wire center, they also recognize that the dynamic algorithm required to perform this optimization would be too complex and that the necessary data would be unavailable. AT&T and MCI demonstrate that the Hatfield Model provides the best method to estimate the forward-looking cost of the optimal configuration, one superior in theory and practice to the BCPM's use of incumbents' embedded switch mix.

Section II demonstrates that there is nearly unanimous support for the Commission's conclusion that multiple switches should be placed in a wire center when one or more switching capacity constraints are exceeded. The Hatfield Model satisfies this criteria and incorporates very conservative estimates for key switching constraints, ones well below the manufacturers' advertised limits. Opponents of the Hatfield Model, once again, merely endorse solutions based on embedded cost and switch placements.

AT&T and MCI show in Section III that the incumbent LECs' treatment of switching costs is also driven by embedded investment decisions. Some commenters openly endorse "actual costs" (i.e., embedded costs) while others, including the BCPM's sponsors, propose to reach the same result by using some variant of SCIS. SCIS is a closed, proprietary model that utilizes outdated and vendor specific inputs. Overcoming the limitations inherent in SCIS would be far more complicated and prone to error than simply relying on the Hatfield Model that was specifically designed to calculate universal service costs. Finally, there is no evidence that the net present value of growth lines to be purchased in the future exceed new line costs. Even if they did, it would nevertheless be inappropriate to include growth line costs in cost models while not incorporating the opposite effect that would arise by including growth for other network components.

In Section IV, AT&T and MCI show that there is no opposition to the Commission's proposals to separate port from non-port investment and to separate local from non-local usage. The Hatfield Model performs the first task by allocating 30% of all switching expenses to port investment, a number supported by incumbent LEC cost studies. If the Commission, however, decides to perform a cost study, it must ensure that the investigation is vendor neutral and uses an appropriate definition for port investment.

Finally, Section V notes the broad support for the Commission's decision to require the selected cost mechanism to estimate costs for all network elements necessary to provide interoffice trunking, signaling, and local tandem services. Moreover, no commenter contends that any model other than the Hatfield Model currently performs this function. Some incumbent LECs

attack the Hatfield Model, but these claims are false as an examination of the model's logic or documentation would reveal.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
Forward-Looking Mechanism for High Cost Support for Non-Rural LECs	)	CC Docket No. 97-160

COMMENTS OF AT&T CORP. AND
MCI TELECOMMUNICATIONS CORPORATION

Pursuant to the Commission's Further Notice of Proposed Rulemaking,[1] AT&T Corp. ("AT&T") and MCI Telecommunications Corporation ("MCI") hereby submit their joint reply comments with respect to the designated issues concerning the selection of a forward-looking cost mechanism for use in determining the level of federal support for universal service in high cost areas. These comments specifically address the comments submitted by other participants in this proceeding on issues related to switching costs and interoffice trunking, signaling, and local tandem investment as requested by the Commission in sections III.C.3 and III.C.4 of its FNPRM.[2]

[1] Federal-State Joint Board on Universal Service, Forward-Looking Mechanism for High Cost Support for Non-Rural LECs, CC Docket Nos. 96-45, 97-160, Further Notice of Proposed Rulemaking (released July 18, 1997) ("FNPRM").

[2] As stated in their initial comments, AT&T and MCI will in accordance with the Notice address specific switching inputs in separate cost model input comments and reply comments.

INTRODUCTORY STATEMENT

The comments submitted in the first round of this proceeding reflect broad consensus on most of the switching and interoffice cost issues raised by the Commission. Virtually all commenters agree, for example, that a cost model ideally should capture economies realizable from placement of a cost effective mix of host, stand-alone, and remote switches, but that data and processing limitations render dynamic identification of the particular optimal switch type at each wire center level impractical. And there is almost unanimous accord that a cost mechanism should assign multiple switches to a wire center when switch capacity constraints are exceeded. Similarly, there is no resistance to the Commission's proposal to separate port from non-port investment, and there is widespread agreement that a cost model should estimate costs for all network elements essential for providing universal service.

Where consensus has not emerged, that largely reflects the refusal of certain commenters to adhere to the fundamental guidelines the Commission has adopted for the development of a universal service cost model. In particular, the incumbent LECs, to varying degrees, ignore both that a universal service cost model must estimate the forward-looking economic costs of providing universal service and that the model's data and algorithms must be open and verifiable.[3] Indeed, the incumbent LECs, in their now tired pleas for subsidy of "actual" costs, do not even attempt to conceal their ongoing refusal to accept the Commission's forward-looking approach, and they repeatedly urge the Commission to rely on unverifiable (and unreliable) information.

---

[3] See FNPRM ¶ 1 (federal universal service to be based on "forward-looking economic cost"); Report and Order, Federal-State Joint Board on Universal Service, CC Docket No. 96-45 ¶ 224 (released May 8, 1997) ("USF Order"); AT&T/MCI at 2-3.

GTE takes the most extreme position, claiming: (i) there is a difference between "actual forward looking costs" and "hypothetical forward looking costs" (GTE at 6); (ii) that a cost model should model "actual" forward looking costs (id.); and, (iii) that "actual" forward looking costs are GTE's embedded costs. Id.; see also id. at 4-5 (a cost model should "use existing wire center locations . . . as well as existing switch types, interoffice transport facilities, loop technology, and other real world factors . . . . [T]he output of the model should be verified against the company's embedded costs").[4] The BCPM's sponsors do a better job of concealing their model's reliance on embedded investment patterns, but even a cursory examination of their basic assumptions and the BCPM's algorithms readily reveals that the most important factors in setting the BCPM's estimate of switch (and other) costs remain the costs that have already been incurred. This is perhaps best illustrated by BCPM's reliance on the "SCIS" model as the foundation for their "promised" Audited LEC Switching Module ("ALSM"). SCIS (and therefore ALSM and the BCPM) relies on embedded data, includes vast degrees of complexity unnecessary and undesirable for modeling a basic telephone network and determining universal service support. Furthermore, SCIS utilizes proprietary data and processes that make sufficient verification impossible.

In addition, AT&T and MCI took it for granted that the participants in this proceeding would focus on identifying a forward-looking cost mechanism for Joint Board and Commission

[4] In addition to its improper attacks on forward-looking costing, GTE raises a host of additional issues that are outside the scope of this proceeding, including challenges to the methods developed by the Federal-State Joint Board and the Commission for identifying high cost areas and for determining the subsidy to which the local exchange carrier that serves those areas is entitled. See GTE at 1.

defined universal service. The incumbent LECs, however, would apparently have consumers subsidize a host of expanded services. The Hatfield Model has switching capacity and capabilities more than sufficient for a network capable of providing universal service. The Hatfield Model has been designed from its inception to isolate the forward-looking costs of a universal service network. And while Hatfield can perform a number of other important network cost calculations, to the extent possible, it avoids inflating costs that would result from over-building complexity and capacity that are unnecessary to supply the basic telephone service that is to be supported by universal service subsidies.

Finally, although most commenters have addressed the issues raised in the Notice, GTE has launched a gratuitous and wholesale attack the Hatfield Model. GTE's claims are patently false, disingenuous, and clearly designed to mislead. For example, GTE alleges that all wire center serving areas in the model are the same size -- which they are not; claims that the model does not use CCS/MS[5] values in determining switch loading and truck requirements -- which it does; and mislabels a host of model parameters -- simply ignoring the Hatfield documentation -- in order to draw wholly incorrect conclusions based on these misrepresentations. This is not the first time that GTE has leveled these spurious claims. Proponents of the model have convincingly rebutted these same objections in various state proceedings.[6] Indeed, in its single-minded efforts to undermine the model, GTE even attacks past shortcomings that the model's supporting

[5] CCS/MS is an industry measure of hundred call seconds (CCS) per main station (MS).

[6] See Joint Reply Comments of AT&T Communications of California, Inc. (U 5002 C) and MCI Telecommunications Corporation (U 5011 C) on TELRIC Cost Studies, Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks, R. 93-04-003, "Reply Declaration of Robert A. Mercer, Ph.D." (C.P.U.C. 1997).

documentation makes clear -- to anyone who bothers to read it -- have been eliminated.[7] AT&T and MCI will limit their responses here to the issues noticed for comment.

I. THE COMMENTS DEMONSTRATE THAT A DYNAMIC OPTIMIZATION ALGORITHM DESIGNED TO IDENTIFY WHETHER A WIRE CENTER HOUSES A HOST, STAND-ALONE, OR REMOTE SWITCH IS IMPRACTICAL.

There is widespread agreement that host, stand-alone and remote switches may have different cost and service characteristics that may make one type of switch more appropriate for a particular wire center than another. See AT&T/MCI at 5; BellSouth/U S WEST/Sprint, Att. 1 at 1; Ameritech at 2-4; Bell Atlantic/NYNEX, Att. at 1; WorldCom at 2; TDS at 5. At the same time, the sponsors of both cost models (and most other commenters) agree that a dynamic algorithm to optimize switch type at the wire center level is impractical, if possible at all. AT&T/MCI at 6-8; BellSouth/U S WEST/Sprint, Att. 1 at 1; SBC at 4; GTE at 11; Ameritech at 2.[8] In this regard, the comments confirm the number and complexity of interdependent switch and location-specific constraints that would have to be reflected in even a crude optimization algorithm with the most simplistic host/remote and standalone assumptions. As Ameritech (at 2)

---

[7] For example, GTE (App. 1 at 3) lists the number of lines assigned to three offices in Hatfield Version 3.1. If GTE had examined Hatfield 4.0, they would find that the model's designers corrected this problem as part of the continuing effort to refine the estimate of lines served in each office.

[8] Bell Atlantic/NYNEX (Att. at 1) have taken the wholly untenable position that an econometric model might be used to determine what type of switch should be placed in a particular wire center. This type of statistical modeling is not only wholly dependent on embedded investment, it is also incapable of capturing the complexity of a network configuration which requires a dynamic optimization. For example, in an econometric model, a wire center could only be "considered" for a remote switch if a host switch is available at another wire center. But determining whether or not to place a host switch in a wire center properly requires consideration of whether or not another wire center might utilize a remote switch. A static econometric model will not capture these and other important dynamic determinations.

notes, "no such algorithm exists." Even if one did, it could not be relied upon to produce accurate results. And the Rural Utilities Service (at 2) claims that the host/remote versus standalone demarcation is far from absolute -- some remote switches can connect to other switches without passing traffic through a host. Further, Digital Loop Carrier ("DLC") often is a more efficient alternative to placement of a remote switch. See TDS at 5 ("This technology can enable a LEC to reduce the hardware it must deploy at either a host or remote office"); ITC at 4; WorldCom at 2. And whatever the theoretical prospects for a dynamic optimization algorithm, data limitations would, in practice, render any such algorithm unusable. See BellSouth/U S WEST/Sprint, Att. 1 at 2 ("We are not aware of public sources for most of this data; furthermore, much of it cannot be predicted"). For these reasons, "it is not feasible, using publicly available information, to program the proxy models to optimally place hosts and remotes." Id., Att. 1 at 1.

Just as important, calculating universal service subsidies does not require identification of the switch type at each wire center. All subscribers on an entire switching system benefit from the efficiencies of optimally allocating switches to the wire centers, not only those that have less expensive remote switches. Hence, a cost model only needs to ascertain the switching costs of providing universal services over all the contiguous wire centers. The question, then, is where to look for publicly available information that will best approximate forward-looking optimization calculations for an entire switching system. There are two proposals. The BCPM sponsors and other incumbent LECs predictably urge the Commission simply to throw aside its central forward-looking premise and require that cost models accept as "efficient" for each wire center whatever switch type the incumbent happened to place there, regardless when the placement decision was made. Even putting aside the switch cost estimation problems associated with any such wire

center-specific approach, see Section III infra, it is plainly inappropriate to rely on this embedded wire center data in estimating the switch architecture that is efficient on a forward-looking basis.

Embedded switch placement decisions reflect the switch and related costs and capabilities of the past, and it is undeniable, for example, that both the cost characteristics and capabilities of remote switches have changed greatly in recent years. This is well illustrated by the empirical data provided by the Rural Utilities Service (at 2 & Table 2) -- in the span of only four years between 1992 and 1996, the remote switch share of new switch purchases by LECs covered by the RUS study increased from 68% to 87%. Similarly, as of 1996, 7.3% of RBOC switches (serving 18.8% of their lines) were still analog. See ARMIS 43-07. Further, any reliance on incumbent LECs' embedded switch decisions at the individual wire center level necessarily would require the Commission to devise rules to allocate to remote switches the significant costs at the host switch attributable to the remote switches' requirements. See, e.g., Rural Utilities Service at 2 ("More processor capacity and power is generally required in the host office and adjunct equipment for toll ticketing, traffic monitoring and testing is more extensive and costly in the host office").

The Hatfield Model approach of basing average switch costs on the current purchasing practices of incumbent LECs, by contrast, is faithful to forward-looking cost estimation principles. Indeed, as one incumbent LEC has stated in its comments, data on recent actual LEC purchases (like the NBI data used by Hatfield) should appropriately reflect all available and relevant information on the efficient placement of host, remote and standalone switches. See, e.g., Ameritech at 3 ("Ameritech performs an in-depth analysis to determine the requirements for the switch. . . . Ameritech issues a Request for proposal (RFP) to the vendors. . . . the vendors respond with their design along with installation intervals and prices. . . . using the RFP responses,

Ameritech chooses the bid that best meets cost effective objectives while matching the office requirements and Ameritech's ability to operate and maintain the design"). Equally important, by relying on average cost data rather than wire center specific determinations, the Hatfield approach already effectively allocates the cost of host switches to remote locations based on the forward-looking mix of switches. In short, the advantages of the tested Hatfield approach compared to BCPM's proposal -- particularly when coupled with the myriad difficulties discussed in Section III, infra, that would accompany any proposal to "model" individually the costs of each switch -- are clear.

II. THE HATFIELD MODEL SATISFIES ALL SWITCHING CAPACITY CONSTRAINTS IDENTIFIED IN THE COMMENTS THAT ARE RELEVANT TO PROVIDING UNIVERSAL SERVICE.

The proponents of both cost models and most other commenters agree that in a forward-looking analysis it is appropriate to place multiple switches in a wire center whenever one or more switching capacity constraints would otherwise be exceeded by the relevant traffic. See BellSouth/U S WEST/Sprint, Att. 1 at 3; Bell Atlantic/NYNEX, Att. at 2; WorldCom at 3; Rural Utilities Service at 2. Only GTE and Ameritech disagree. They urge the Commission simply to ignore these capacity limitations and instead to use "the number of switches that currently exist" in each wire center as the "best" estimate of the efficient number of switches for universal service purposes. Ameritech at 5; GTE at 18. As explained above, this proposed focus on embedded incumbent LEC decisions -- and the outdated switch characteristics and costs they may reflect -- is inappropriate in a forward-looking model. Moreover, the number of existing switches in a particular incumbent LEC wire center may reflect existing or forecasted traffic for broadband

usage wholly unrelated to the basic telecommunications services upon which the Commission has repeatedly directed cost modelers to focus.

As AT&T and MCI have explained, the Hatfield Model appropriately accounts for switch capacity constraints in a forward-looking universal service framework by using very conservative estimates -- well below manufacturers' advertised limits -- for key switching constraints, including line capacity, busy-hour call attempts, and the amount of traffic carried. See AT&T/MCI at 9-10. As a result, the switches deployed in the Hatfield Model are more than sufficient to handle the relevant traffic requirements. The BCPM sponsors criticize the Hatfield approach as "inadequate" and "simplistic" because "some" unspecified switches may be constrained by "vendor-specific" factors (BellSouth/Sprint/U S WEST, Att. 1 at 3-4), but a careful reading of the BCPM submission confirms that the only "solution" they offer is, once again, wholesale reliance on embedded incumbent LEC placement decisions. Moreover, this feature of the BCPM -- at least based on the limited amount of information that has been provided -- precludes it from actually modeling capacity constraints. It simply reflects the decisions made about the embedded plant's existing switch capacities. The Hatfield Model, by contrast, dynamically re-engineers the capacity constraints in response to different user specified criteria. See id. at 3 ("By basing its switch costs upon the current efficient placement of switches as shown in LERG, the new BCPM shall inherently include capacity constraints").[9]

---

[9] GTE (App. 1 at 7) claims that the Hatfield Model "[CCS/MS] value is not used in any downstream calculations." But, in fact, very little effort is required to trace the offered load calculation through the model to see how the CCS/MS value is used in determining switch loading and truck requirements. GTE (App. 1 at 7) also assails Hatfield on the basis that "no input change is allowed" when it is well aware that the model computes the effective busy-hour traffic per line from the carrier's reported usage and even then the user can change this input. Similarly, GTE (App. 1 at 9) states that the Hatfield Model "attempts to size all switches with the (continued...)

III. THE COMMENTS CONFIRM THAT THE HATFIELD MODEL PROVIDES THE BEST APPROACH TO DETERMINING SWITCH COSTS.

As demonstrated in the initial comments of AT&T and MCI, the Hatfield Model uses a switching cost curve developed from current incumbent LEC switching purchases as published in the NBI Report.[10] This data is open to public scrutiny and provides far superior estimate of forwarding-looking costs than historic data or unverifiable information provided by the incumbent LECs.

The incumbent LECs' stubborn adherence to embedded costs is nowhere clearer than in their comments on switching costs. Bell Atlantic/NYNEX (Att. at 3) openly advocate using actual booked costs. The BCPM sponsors (Att. 1 at 4) and Ameritech (at 4) propose to reach the same results through a variant of SCIS, a model developed by incumbent LECs for use in a regulatory environment for developing the cost of individual switching features. This model has demonstrated considerable flexibility to generate high costs for regulated services and low costs for unregulated services.

These SCIS-based proposals are fundamentally flawed.[11] As an initial matter, SCIS is a closed, proprietary model, and its owners have made clear in state arbitration proceedings and

---

(...continued)
same set of parameters" when actually the model contains a range of default limits for both processor (real-time) and switch (traffic) capacity.

[10] Northern Business Information Study: U.S. Central Office Equipment Market -- 1995 Database, McGraw-Hill, New York, 1996 ("NBI Report"). The Hatfield Model also relies on the ARMIS 43-07 and responses to the 1994 USF Notice of Inquiry data request for public line and data on average lines per switch. See Hatfield Model Description at 48.

[11] ALSM, the SCIS variant proposed by the BCPM sponsors, includes switching output granularity that requires input granularity that makes the model highly sensitive to estimation error and impossible to validate. See BellSouth/U S WEST/Sprint, Att. 1 at 4. This granularity has no use in the universal service context, but instead appears to have been included to support (continued...)

elsewhere that they will pursue any and all legal means to limit access to the model. Whatever variant of SCIS the incumbent LECs may propose using here, there can be no guarantee that the Commission and interested parties ultimately will be allowed to freely use the model or to review and audit its logic and operation.[12]

This critical shortcoming is exacerbated by the fact that SCIS relies on proprietary information from vendors including their specific engineering rules. Further, the data that incumbent LECs use to populate the model are often outdated -- a limitation greatly magnified by SCIS's reliance on embedded switch locations and other characteristics of the existing network -- and many of these data and other user specified inputs must reflect forecasts to even begin the process of separating SCIS from its embedded cost roots.[13] The complexities of forecasting these inputs alone -- which are well illustrated by the BCPM's proponents' admittedly failed attempt to

---

(...continued)
incumbent LECs' improper attempts to price switch features, functions, and capabilities as individual network elements in the state arbitration proceedings.

Furthermore, because the BCPM sponsors have not yet released a working version of their model incorporating ALSM or its written documentation, AT&T and MCI's Reply Comments must focus only on the general characteristics of its SCIS basis and not on its evolving implementation within the BCPM.

[12] Nor can the Commission reasonably allow the use of proprietary version of SCIS on the theory that it was audited in the past. That audit addressed only those several elements of SCIS used in the Open Network Architecture ("ONA") proceeding, see Open Network Architecture Tariffs of Bell Operating Companies, "Order," CC Docket No. 92-91 (released Dec. 15, 1993), and, in any event, the audit is now dated and cannot attest to the substantial variations in SCIS that have occurred since that time.

[13] To the extent that a wire center contains a switch with a growable processor, SCIS takes as a given that processor type for determining switching costs. In other words, the model will not calculate the optimal processor based on usage inputs and may therefore significantly overestimate costs.

employ SCIS in the survey process they used to populate the model's switching costs in their January 1997 filing -- clearly argue in favor of the Hatfield approach which avoids these problems by using publicly available data on actual recent incumbent LEC switch purchases.

SCIS also relies on vendor and equipment model specific inputs, a technique that presents numerous difficulties and little or no advantages. First, it would be inconsistent to adopt vendor specific parameters in the switching context, but not other areas. Second, selectively including vendor specific information in some aspects of a model but not in others also creates undesirable opportunities to "game" the modeling process.[14] Third, a reliable network optimization using vendor specific data is impossible in practice. Market shares of each equipment model and vendor, purchasing practices, and other currently unavailable data would be required on a forward-looking basis. Individual prices for each switch type and vendor would also be necessary. Fourth, these same difficulties that make modeling intractable would also preclude verification of the cost mechanism's algorithms, data, and results. In particular, the SCIS model even relies on specific characteristics in the components of manufacturer switches and other equipment. Both the Commission and the parties, however, have had tremendous difficulty obtaining even average switch prices, much less vendor specific prices, or the costs and characteristics of individual switch components.

AT&T and MCI also agree to some extent with those commenters expressing concern about the use of the FCC switching data. See, e.g., Bell Atlantic/NYNEX at 3. That data

[14] A closely related and potentially serious risk of basing USF subsidy calculations on vendor and equipment model specific inputs is that it may create arbitrage opportunities for the incumbent LECs to purchase particular equipment from particular vendors and thereby affect the level of subsidies.

includes the costs of local tandems, operator tandems, SCPs, STPs, and other equipment, thereby inflating the expense incurred in purchasing basic end office switching equipment. Before the Commission could properly rely on this pricing information, it would require careful adjustment as well as an "update" to reflect current switch prices, which continue on their downward trend. AT&T and MCI would note, however, that it is very telling that the FCC's switching costs are approaching those employed by the Hatfield Model. While Hatfield's forward-looking values remain the best estimates available, the FCC data -- appropriately adjusted -- are certainly preferable to and more accurate than SCIS. Futhermore, the Hatfield Model approach is felxible and easily modified if better public cost data becomes available.

The comments also demonstrate that including growth line costs, in addition to new line expenses, would be unreliable and almost certain to inflate improperly universal service costs. See AT&T and MCI at 10; WorldCom at 5. Indeed, there is still no real evidence that growth lines cost significantly more than new lines. BellSouth/U S WEST/Sprint (Att. 1 at 5) simply state that "[g]rowth lines tend to be more expensive[.]" (emphasis added). But, as AT&T and MCI (at 11-12) explained in their initial comments, even if growth lines do cost more than new lines, the net present value of growth lines to be bought in the future may even be less than the cost of new lines.[15] Moreover, it is inappropriate for the incumbent LECs to include higher line growth expenses in their cost models while not incorporating the opposite effect for other network components such as growth in loop plant which is far cheaper per unit than installing new loop plant due to the use of existing structures. These factors, coupled with the difficulty of obtaining

[15] Even Bell Atlantic/NYNEX (Att. at 4) acknowledge that a present value adjustment must be made.

reliable switch component cost data, strongly argue against any attempt by the Commission to explicitly include supposedly higher growth line expenses in the selected cost mechanism.

IV. THE COMMENTS UNANIMOUSLY SUPPORT SEPARATION OF PORT AND NON-PORT COSTS.

No participant in this proceeding disagreed with the Commission's decision to separate port and non-port costs. See, e.g., AT&T and MCI at 12; Bell Atlantic/NYNEX, Att. at 4; Ameritech at 7; WorldCom at 6; SBC at 5; Aliant at 3; BellSouth/U S WEST/Sprint, Att. 1 at 6. A few incumbent LECs, however, have advocated using some variant of SCIS to determine the appropriate allocation factor. AT&T and MCI (supra at Section III) have already enumerated several of the weaknesses in this approach to forward-looking cost estimation that render it entirely inappropriate for differentiating between port and non-port costs. At the same time, it would not be appropriate for the Commission to conduct a detailed engineering study that takes a vendor specific approach. See supra at Section III. While AT&T and MCI would not object to a cost study that is vendor neutral and uses an appropriate allocation standard, they continue to believe that the Hatfield Model's assignment of 30% of total switch investment to the port -- an allocation that public studies have shown to be reasonable[16] -- provides the simplest, most straight-forward approach. See AT&T and MCI at 13.

[16] New York Study, Case 0657:94-C0095 & 91-C1174, Workpapers Part B at 93 (average 24% of line port); Massachusetts Study, 96-73/74: 96-75: 96-80/81: 96-83: 96-94 (filed Oct. 24, 1996) Workpaper Part B at 73 (average 43% of line port).

V. THE COMMENTS REVEAL THAT THE HATFIELD MODEL MOST ACCURATELY DETERMINES THE COST OF THE SPECIFIC ELEMENTS NECESSARY TO PROVIDE INTEROFFICE TRUNKING, SIGNALING, AND LOCAL TANDEM SERVICES.

No commenter objected to the Commission's tentative conclusion that the selected cost model should estimate cost for all network elements necessary to provide interoffice trunking, signaling, and local tandem services, nor have they disputed that only the Hatfield Model currently does so. See AT&T and MCI at 14; BellSouth/U S WEST/Sprint, Att. 1 at 8; Ameritech at 8; ITC at 6. Some commenters, however, objected to the Hatfield algorithm and inputs on grounds that merely reflect their ongoing attempts to recover embedded costs, collect overcompensatory universal service contributions, and rely on their own proprietary information. For example, the BCPM sponsors incorrectly allege that the Hatfield Model "does not create a realistic model of the interoffice network because it does not model the homing relationships between remotes and host and host to tandems." BellSouth/Sprint/U S WEST (at 9); see also Bell Atlantic/NYNEX (at 5). But, in fact the Hatfield interoffice transport distances and investments are more than adequate. Every wire center in the Hatfield Model is connected on a ring or on a spur and every wire center currently homes to a tandem. Thus, these commenters are only correct to the extent that the Hatfield Model includes too much interoffice facilities in the network by not accounting for the typically shorter distance between a host and remote switch than between a tandem and remote switch. In addition, Hatfield extends the SS7 signaling network to each wire center, whereas the host switch will usually perform these functions for the remote. Hence, the claim (at

9) that Hatfield "understates the route distances required to connect the offices" because it does not "recognize diverse routing requirements for small 'off ring' offices" is simply untrue.[17]

GTE's comments are not only wrong, they suggest that GTE has a profound lack of understanding about traffic engineering. For example, GTE criticizes the Hatfield Model for building a network "to handle only 10% of [the] averaged business day traffic." GTE, App. 1 at 13. With this baseless statement, GTE is essentially rejecting the notion that networks are engineered to handle peak loads. Apparently, GTE believes that an interoffice call destroys the line on which it is carried and the switch processor which sets up the call -- or at least renders them inoperable for the rest of the day. In fact, interoffice transport capable of handling 10% of the average business day traffic is more than sufficient to handle peak and especially off-peak volume. GTE makes other patently false and misleading claims about Hatfield's interoffice transport algorithms. Despite Hatfield's documentation to the contrary, GTE (at 16) blithely labels one of the model's parameters (a 1.5 multiplier) as a "route-to-air" distance multiplier and then draws a series of patently false conclusions based on this egregious error. Furthermore, GTE

---

[17] Ameritech (at 8) criticizes the Hatfield Model for not taking into account variations in installation costs due to geographical differences. The Hatfield Model does incorporate terrain and ground conditions in determining loop costs because this information is available at the CBG level. Unlike installing local loops, however, where an incumbent LEC may have a very limited number of routes to reach a customer's premises, the incumbent LEC will have substantial flexibility in determining the most cost effective route to connect wire centers. Because Hatfield uses an average installation cost for interoffice elements, it tends to overstate costs by not capturing this routing flexibility.

As SBC (at 8) correctly notes, a recently submitted version of the Hatfield Model failed to allocate enough tandem switches in at least one state. The responsible programming error has been corrected and the Hatfield Model will provide a sufficient number of tandem switches in all states in future releases to install at least one tandem in each LATA.

also alleges what even the most superficial perusal of the model and its documentation would confirm -- wire center serving areas are not "the same size as every other serving area." GTE (at 16).

The BCPM's proponents now claim that they have updated their model to produce cost estimates for at least as many interoffice related network elements as the Hatfield Model. BellSouth/U S WEST/Sprint, Att. 1 at 8. But AT&T, MCI, and other interested parties have not had the opportunity to examine the model, to determine whether its meets appropriate specifications or whether the specifications that it does meet match the specifications claimed by its authors. By contrast, the Hatfield Model has been open to public evaluation and criticism -- even the totally unsubstantiated and contrived allegations routinely raised by GTE. Accordingly, the Hatfield Model remains the only reasonable choice for modeling interoffice investment.

CONCLUSION

For the foregoing reasons, the Commission should adopt the Hatfield Model approach to the switching and interoffice issues raised in the Notice.

Respectfully submitted,

AT&T CORP.

/s/ Mark C. Rosenblum/smb

Mark C. Rosenblum
Peter H. Jacoby
Room 3245H1
295 North Maple Avenue
Basking Ridge, New Jersey 07920
(908) 221-4243

David L. Lawson
Scott M. Bohannon
1722 Eye Street N.W.
Washington, D.C. 20006
(202) 736-8034

Attorneys for AT&T Corp.

MCI Telecommunications Corporation

/s/ Mary J. Sisak/smb

Mary J. Sisak
1801 Pennsylvania Avenue, N.W.
Washington, D.C. 20006
(202) 887-2605

Attorney for MCI Telecommunications Corporation

August 18, 1997

CERTIFICATE OF SERVICE

I, Scott M. Bohannon, do hereby certify that on this 18th day of August, 1997, I caused a copy of the foregoing Reply Comments of AT&T Corp. and MCI Telecommunications Corporation to be served upon each of the parties listed on the attached Service List by U.S. First Class mail, postage prepaid.

/s/ Scott M. Bohannon
Scott M. Bohannon

SERVICE LIST

The Honorable Reed E. Hundt
Chairman
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, D.C. 20554

The Honorable Rachelle B. Chong
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, D.C. 20554

The Honorable Susan Ness
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, D.C. 20554

The Honorable James H. Quello
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, D.C. 20554

The Honorable Julia Johnson
State Chair
Chairman
Florida Public Service Commission
2540 Shumard Oak Boulevard
Gerald Gunter Building
Tallahassee, FL 32399-0850

The Honorable David Baker
Commissioner
Georgia Public Service Commission
244 Washington Street, S.W.
Atlanta, GA 30334-5701

The Honorable Sharon L. Nelson
Chairman
Washington Utilities and
Transportation Commission
1300 South Evergreen Park Dr., SW
P.O. Box 47250
Olympia, WA 98504-7250

The Honorable Laska Schoenfelder
Commissioner
South Dakota Public Utilities Commission
State Capitol, 500 East Capitol Street
Pierre, SD 57501-5070

Martha S. Hogerty
Missouri Office of Public Council
301 West High Street, Suite 250
P.O. Box 7800
Jefferson City, MO 65102

Tom Boasberg
Office of the Chairman
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, D.C. 20554

Charles Bolle
South Dakota Public Utilities Commission
State Capitol, 500 East Capitol Street
Pierre, SD 57501-5070

Deonne Bruning
Nebraska Public Service Commission
300 The Atrium, 1200 N Street
P.O. Box 94927
Lincoln, NE 68509-4927